

Section 1

**BACKGROUND INFORMATION
ON THE NEW DAMAGE CONTROL
STOWAGE PHILOSOPHY**

BACKGROUND

This Stowage Aid Booklet provides recommended DC equipment stowage information and includes options that should be considered for particular ship configurations.

Shipboard fires, smoke, and flooding, can threaten crew safety and the ultimate survival of the ship. Damage control (DC) tactics, training, equipment, and stowage are the tools used to combat these threats of shipboard damage.

Distribution of equipment is an important element of DC to improve reaction time, reduce injury to personnel, and increase survivability of the ship.

Lessons learned from past casualties and DC scenarios have led to improvements and additions to repair party equipment. However, proper distribution and stowage of DC equipment has not received the attention it deserved.

Today, there is a renewed emphasis on how and where to stow DC equipment to improve the response time of repair teams and thus reduce potential loss of life and ship damage. Recent shipboard casualties on USS PRINCETON (CG 59), USS TRIPOLI (LPH 10), USS CONYNGHAM (DDG 17), and USS DEYO (DD 989) have proven that when the command disperses equipment and personnel within the repair station's area of responsibility, improved reaction time, and survivability are achieved.

The elements of the DC equipment stowage philosophy are as follows:

1. The DC deck is designed as the primary staging area for DC repair parties. The damage control organization disperses equipment within the repair station's area or zone of responsibility by the equipment's function, which are: fire fighting, desmoking, and dewatering. Functionally, grouped and stowed equipment provides immediate access so that repair teams can respond quickly and positively to a casualty.
2. Equipment currently crammed inside the repair locker, such as fire extinguishers, casualty power cables, general quarters gear, oxygen breathing apparatus, portable fans, and canisters, should be relocated to the passageways in a functionally organized and logical manner.
3. Large DC equipment should be located in the passageway with its functional group near power and exhaust sources.
4. Teams and equipment are dispersed port and starboard, fore and aft, and above and below deck (Refer to section 2, sketch 001). This allows flexibility, survivability, and improved response by repair party personnel to combat the casualties as soon as they are reported.

5. Providing adjustable shelving to repair station stowage bins will improve space available for new equipment.
6. Utilization of "dead areas" of the ship for stowage shelving and brackets such as, shell area in passages or the area behind doors and hatches.
7. Utilization of stowage devices that are flexible enough to accommodate equipment improvements and changes.

Implementation of the Concepts within this booklet will:

1. Decrease the possibility of a single weapon hit destroying an entire repair party organization.
2. Minimize the amount of initial confusion since equipment is already strategically dispersed.
3. Eliminate the bottleneck of personnel at the repair locker compartment entrance when general quarters is sounded.
4. Improve the equipment setup and response times of repair party teams combating casualties.
5. Limit the extent of damage to a ship.

Damage control in the Navy is exceptional. But with personnel and material at risk, we must continuously seek improvement and eliminate all potential hazards. Our training is outstanding and our equipment is first rate. The stowage features presented herein will distribute DC equipment most effectively throughout the ship, and repair party personnel will be able to respond more quickly to casualties and ships will be safer and more survivable.

Additional resources of describing DC/fire fighting equipment and information are:

1. "Surface Ship Survivability," Naval Warfare Publication 62-1.
2. Practical Damage Control NSTM Chapter 079, volume II.
3. Fire Fighting - Ship NSTM Chapter 555.
4. Personnel Protection Equipment NSTM 077.
5. Training Aid Booklet for Damage Control Equipment.
6. Safety and Survivability "Video," The Value of Proper Damage Control Equipment Stowage

7. Gas Free Engineering NSTM Chapter 074, volume 3.
8. Damage Control Allowance Equipage List (AELs) June 1990, 2-880044200 through 2-880044288 series.

NAVSEA's approach to achieving this goal is:

1. The Navy revised and standardized the DC Allowance Equipage Lists (AELs) for Fleet use. The June 1990 update reorganized the D.C. AELs by the number of repair stations, the "Parent AELs," and then subdivided them into Kits, or "Kit AELs," organized by the equipment function. The AELs are being implemented fleetwide to improve damage control configuration.

2. "Surface Ship Survivability," Naval Warfare Publication 62-1, revision C, invoked the requirement for distributive stowage of DC Kits throughout the repair station. This means stowing equipment by function in passageways or other suitable location within the repair station's zone of responsibility.

This spreading out of equipment will expedite effective reaction time to a specific or combination of DC/fire fighting casualties. Thus, DC teams no longer congregate in one area.

This approach further increases the chance to control damage, limit personnel casualties and improve ship survivability.

3. The Navy has published the "Training Aid Booklet for Damage Control Equipment." This publication clearly describes each piece of equipment required in the DC inventory by illustrations, stock numbers, and uses.

4. Photoluminescent paint has been successfully used to identify equipment and egress routes during Damage Control and fire fighting operations.

The Navy is continually striving to improve DC capabilities through conferences, such as the Surface Warfare Commanders Maintenance Conferences, CNO Damage Control/Fire Fighting Working Group, and the Damage Control/Fire Fighting Flag Level Steering Committee.

Improvements are not limited only to better equipment. One example is the recent development of a new software package, Damage Control Asset Management Software (or DCAMS). This was developed primarily to provide shipboard DC personnel with an automated means of tracking the location and status of portable and consumable DC equipment. A secondary purpose for this software is to allow shipboard and shore based personnel the opportunity to evaluate proposed changes in stowage locations for DC equipment and to ensure rapid and effective reaction to emergency conditions.

The Surface Warfare Officers' School Damage Control Training Department completed a mockup of a DC repair station and passageways. The mockup illustrates distributive stowage to new damage control assistants, chief engineers, and prospective commanding officers.

Also, the display ship EX-USS BARRY (DD 933) at the Washington Navy Yard has a DC repair station mockup that design teams of new ship construction can study.

The Navy tests and fine-tunes tactics for effective use of new DC equipment onboard Ex-USS SHADWELL (LSD 15) in Mobile, Alabama.

CONCEPT OF DISTRIBUTIVE STOWAGE

1. Improve Repair Party Response Time

- a. Disburse priority equipment from within the repair locker into surrounding area to prevent bottlenecks and confusion.
- b. Disburse the following functional areas:
 - (1) Fire Fighting Dressout
 - (2) Dewatering
 - (3) Desmoking
 - (4) Fire Fighting Extinguishers
 - (5) Shoring
 - (6) Casualty Power
 - (7) General Quarters Gear

2. Increase Survivability

Disbursal of equipment diminishes consequences from loss of repair locker to damage.

FUNCTIONAL AREAS COMPOSITION

1. Fire Fighting Dressout

- a. Fire Fighting Ensemble (six per station)
 - (1) Fire Fighter's coveralls
 - (2) Fire Fighter's boots
 - (3) Fire Fighter's gloves
 - (4) Flash Gear
 - (5) MK II Helmets
 - (6) Fire Fighter's Helmet Lights
- b. OBAs (six Min)
- c. OBA Canisters (36 Min)

2. Dewatering

- a. P-250 Pump
- b. Two or more Submersible Pumps
- c. Peri-Jet and S-Type Eductors
- d. Associated Fire, Suction, and Exhaust Hoses

3. Desmoking

- a. Two Red Devil Blowers and/or Water-driven Blowers
- b. Two 8-in Expandable Vent Ducts and/or 10-in Expandable Vent Ducts
- c. One Tube Axial Fan
- d. Three Smoke Curtains
- e. Two OBAs (Min)
- f. Twelve OBA Canisters (Min)

4. Fire Fighting Extinguishers

- a. Two CO₂ Extinguishers
- b. One PKP Extinguisher

5. Shoring

- a. Steel Shoring
- b. Wooden Shoring
- c. Wedges
- d. Patches, Box

6. Casualty Power

Cables and Racks

7. General Quarters Gear (Repair Party Personnel)

- a. Gas Mask
- b. Life Jacket with Antiflash Hood and Gloves